

WHAT IS CLAIMED IS:

1. A magnetic clamp for securing a media to an imaging bed, the clamp comprising:
  - 5 a clamp frame having a media-engaging portion capable of bearing against the media;
  - at least one magnet located in the clamp frame wherein, when the media-engaging portion of the clamp frame is bearing against the media the magnet is moveable between a first position wherein the magnet is spaced apart from the imaging bed and a second position wherein the magnet
  - 10 engages the imaging bed; and,
  - a bias mechanism connected to bias the magnet toward the first position.
- 15 2. A magnetic claim according to claim 1 wherein the bias mechanism comprises a spring connected between the clamp frame and the magnet.
3. A magnetic clamp according to claim 2, wherein the spring comprises a plurality of leaf springs attached to the clamp frame.
- 20 4. A magnetic clamp according to claim 2, wherein the spring is integral with the clamp frame.
5. A magnetic clamp according to claim 1, wherein the magnet comprises a permanent magnetic core and at least one pole piece located adjacent to the
- 25 magnetic core, such that when the magnet is in the second position the pole piece engages the imaging bed while the magnetic core is spaced apart therefrom.
6. A magnetic clamp according to claim 5, wherein the imaging bed comprises
- 30 a surface of a cylindrical drum and a portion of the pole piece that engages the drum is shaped to have a radius substantially the same as a radius of the cylindrical drum.
7. A magnetic clamp according to claim 1 wherein the clamp frame has an
- 35 elongate channel configuration.

8. A magnetic clamp comprising a plurality of clamp sections, each of the clamp sections constructed according to claim 7.
- 5 9. A magnetic clamp according to claim 1, comprising an actuator for displacing the magnet between the first and second positions.
- 10 10. A magnetic clamp according to claim 9, wherein the actuator comprises a magnet is adapted to engage the magnet and apply a retracting force to the magnet preferentially along one side thereof.
- 15 11. A magnetic clamp according to claim 9, comprising a lever pivotally attached to the clamp frame and having a first end and a second end, the first end disposed to engage the magnet such that when a force is applied to the second end one side of the magnet is levered out of engagement with the imaging bed.
- 20 12. A magnetic clamp according to claim 9, wherein the actuator comprises an auxiliary permanent magnet for establishing a magnetic flux in opposition to the flux established by the magnet in the clamp frame, the auxiliary magnet aligned with the magnet in the clamp frame.
- 25 13. A magnetic clamp according to claim 9, wherein the magnet comprises a permanent magnetic core with a pair of pole pieces located adjacent to the magnetic core and the actuator comprises a shorting bar aligned with the pole pieces, the shorting bar for providing an alternate magnetic circuit for the magnetic flux established by the magnet.
- 30 14. A magnetic clamp according to claim 9, wherein the actuator comprises an electromagnet for establishing an opposing magnetic flux for temporarily reducing the clamping force during a clamping or retracting operation.
- 35 15. A magnetic clamp according to claim 1 wherein the imaging bed is fabricated from a non-ferromagnetic material and at least one ferromagnetic insert is provided for clamping the magnet to the imaging bed.

16. A magnetic clamp according to claim 1, further comprising means for temporarily reducing the attractive force between the magnet and the imaging bed during a clamping or retracting operation.
- 5 17. A magnetic clamp according to claim 1, wherein the magnet is slidably received in an aperture in the clamp frame.
18. A magnetic clamp for securing a media to an imaging bed, the clamp comprising:
- 10       an elongated media hold down member;  
          a magnet movably coupled to the media hold down member; and,  
          a bias mechanism operative to exert a bias force to bias the media hold down member toward an imaging bed when the magnet is engaged with the imaging bed.
- 15 19. A magnetic clamp according to claim 18 wherein, with the media hold down member in contact with the imaging bed the clamp has retracted and engaged configurations such that when the clamp is in the retracted configuration the bias force is sufficient to overcome a force of magnetic attraction between
- 20       the magnet and the imaging bed and when the clamp is in an engaged configuration the bias force is insufficient to overcome a force of magnetic attraction between the magnet and the imaging bed.
20. A magnetic claim according to claim 19 where the bias mechanism
- 25       comprises a spring.
21. A magnetic clamp for securing a media to an imaging bed, the clamp comprising:
- 30       a magnet assembly generating a magnetic attraction to an imaging bed;  
          a member having a media-engaging portion on a first side of the magnet assembly;  
          an imaging-bed-contacting surface on a second side of the magnet assembly opposed to the first side and,

bias means for biasing the magnet assembly away from the imaging bed when the media-engaging portion is in contact with a media on the imaging bed and the imaging-bed-contacting surface is on the imaging bed.

- 5     22.     A magnetic clamp according to claim 21 wherein, when the media-engaging  
portion is in contact with a media on the imaging bed and the imaging-bed-  
contacting surface is on the imaging bed the clamp has retracted and engaged  
configurations such that when the clamp is in the retracted configuration the  
bias means exerts a bias force sufficient to overcome a force of magnetic  
10     attraction between the magnet and the imaging bed and when the clamp is in  
an engaged configuration the bias force is insufficient to overcome a force of  
magnetic attraction between the magnet and the imaging bed.